

The following charts summarize the various runs of the Bo DAQ system. Table 1 gives basic run information for non-trial runs. Fig 1 gives a schematic of Bo. Table 2 provides expands on Table 1 and provides information on Bo DAQ electronics information and other comments. The data from every run is stored in AFS space at [/afs/fnl.gov/files/data/argoneut/d02/bo/liquid/root_files/](#) Each root file is a separate run. The raw text files from the DAQ are at [/afs/fnl.gov/files/data/argoneut/d02/bo/liquid/](#) where each subdirectory has the files from the run indicated by the directory name.

Table 1: Basic run information

Comment Tag	Run Number	Events Logged	General		Voltages			Data Collection		Counter Info (Position as Labeled around Bo—see figure; Depth from top of main flange to top of counter.)			
			Times		Bias Voltages			Trigger Delay (usec)	Sample Rate (MHz)	Counter 1		Counter 2	
			Start Time	Stop Time	Plane A (V)	Plane C (V)	Cathode (kV)			Position	Depth	Position	Depth
	79	132	8/6/08	8/7/08	-350	500	-25	304	5	M	13.25	E	14.5
	80	47	8/7/08 9:00	8/7/08	-350	500	-25	304	5	M	13.25	E	14.5
	82	17	8/7/08	8/7/08	-350	500	-25	304	5	M	13.25	E	14.5
	85	26	8/7/08	8/7/08	-350	500	-25	304	5	M	13.25	E	24.5
	87	143	8/7/08 13:55	8/7/08 21:33	-350	500	-25	304	5	M	13.25	E	24.5
	89	200	8/7/08 21:39	8/8/08 7:14	-350	500	-25	304	5	M	13.25	E	24.5
	93	15	8/8/08 9:51	8/8/08 11:31	-350	500	-25	304	5	M	18.5	E	18.5
	94	24	8/8/08 11:42	8/8/08 16:30	-350	500	-25	304	5	M	18.5	E	18.5
	96	101	8/9/08	8/9/08	-350	500	-25	304	5	M	18.5	E	18.5
	97	182	8/9/08 9:45	8/10/08	-350	500	-25	304	5	M	13.5	E	13.5
	120	100	9/23/08 18:54	9/24/08 6:58	-300	400	-25	354	5	P	14	G	25
121*	121	400	9/24/08 14:35	9/25/08 4:44	-300	400	-25	354	5	P	14	G	25
122*	122	252	9/30/08 11:12	10/1/08 9:38	-300	400	-25	354	5	M	14	E	25
Config 1	124	32	10/1/08	10/1/08	-300	400	-25	354	5	M	14	E	25

			14:33	17:13									
Config 1	127	135	10/1/08	10/2/08 10:30	-300	400	-25	354	5	M	14	D	25
Config 2	130	150	10/2/08 17:19	10/3/08 7:06	-300	400	-25	354	5	M	14	D	25
Config 3	137	164	10/21/08 17:32	10/22/08 9:24	-300	400	-25	354	5	M	14	D	25
Config 3	164	81	10/23/08 18:05	10/24/08 08:52	-300	400	-25	236	30	M	16.75	D	22.5
Config 3	172	174	10/24/08 11:24	10/24/08 15:58	-300	400	-25	253	15	M	16.75	D	22.5
Config 3	178	21	11/6/08 14:54	11/6/08 17:09	-300	400	-25	354	5	M	16.75	D	22.5
Config 3	179	49	11/6/08 18:16	11/7/08 4:11	-300	400	-25	354	5	M	16.75	D	22.5
Config 3 191*	182	105	11/7/08 11:51	11/8/08 14:01	-300	400	-25	253	15	M	16.75	D	22.5
Config 3 248*	191	86	11/8/08 16:29	11/9/08 11:58	-300	400	-25	304	15	J	16.75	A	22.5
Config 4	248	25	12/22/08 17:14	12/22/08 17:20	-300	400	-25	354	5	J	0	A	34.5
Config 4	250	308	12/22/08 18:19	12/23/08 7:28	-300	400	-25	354	5	J	0	A	34.5
Config 4	252	27	12/23/08 9:25	12/23/08 10:27	-300	400	-25	354	5	M	0	D	34.5
Config 4	254		12/23/08 10:36		-360	489	-25	354	5	M	14	D	25

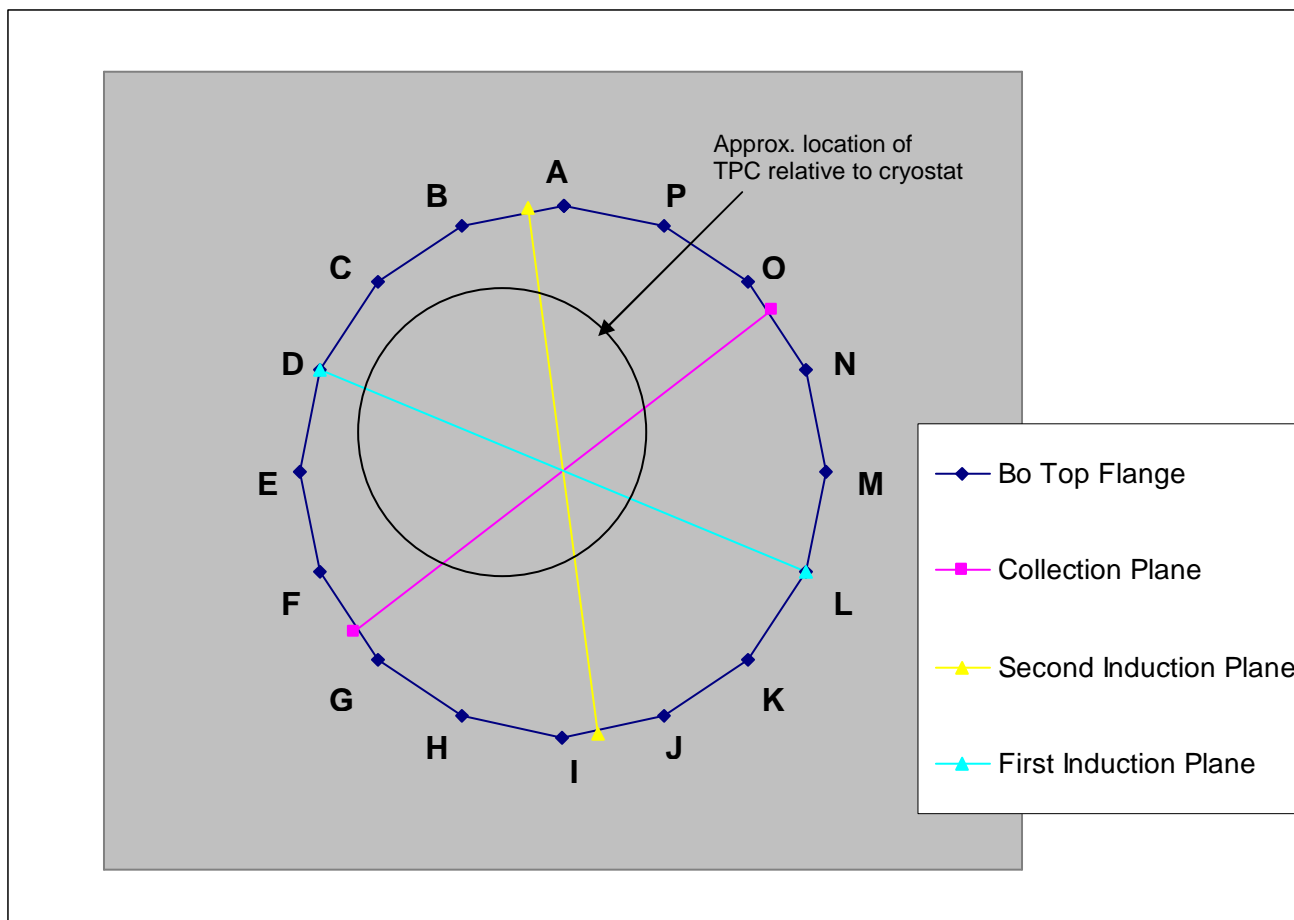


Fig. 1: Wire plane readout direction with respect to top flange. Lines indicate, for their respective planes, the direction of the wires.

Table 2: Information on DAQ electronics and other comments.

Tag	Runs Affected	Comment
	All	Only runs with more than 10 events are included.
121*	121	<i>Pordes</i> : Run 121 has completed with 400 triggers at 4:45 am. The level in Bo now says 22.1 inches; this is below the top of the TPC so I'm not sure what the last events will look like."
122*	122	<i>Edmunds</i> : Note that the UV flash lamp was [in] use for a little while Wednesday morning before R122 was stopped. There are some events that were both triggered by the UV flash lamp and contain only flash lamp pickup in the readout. The UV lamp pickup is a nice vertical line on all 3 planes at T zero. See for example event 251.
191*	191	<i>Andrews</i> : Ended Bo run 191 at 12:00 today after 87 events. Bo level at 24.89 inches. I think all but maybe the last few events were with the high voltage on.
Config 1	124, 127	<i>Edmunds</i> : To study the readout signal filtering, the preamp card for the last 16 wires of the collection plane, i.e. channels 80:95, was changed from one with the stock 200 kHz Low pass filter and stock 10 kHz High pass filter to one with the following characteristics: Channels 80, 82, 84, 86, 88, 90, 92 have the stock 200 kHz Low pass filter and a new 45 kHz High pass filter. Their gain has also been increased by a factor of about 1.22 Note that channel 92 is using a very cut up preamp hybrid that I have not been able to test so if the data from channel 92 looks funny then please do not use it. Channels 81, 83, 85, 87, 89, 91, 93 have a new 400 kHz Low pass filter and the new 45 kHz High pass filter. Their gain has also been increased by a factor of about 1.22 Channels 91 and 93 have very cut up preamp hybrids that I have not tested so please look before using their data. Channels 94 and 95 are stock 200 kHz Low pass and stock 20 kHz High pass filters with the stock gain of a "20 kHz card".
Config 2	130	<i>Edmunds</i> : All readout channels have been returned to their normal setup except that collection plane channels 72:79 now are using preamp driver hybrids with a flatter output. Collection plane channels 72:79 are the 20 kHz High pass filter channels nearest the middle of the plane.
Config 3	137-193	<i>Edmunds</i> : Collector plane channels 80:87 now have a unipolar filter that makes as narrow of a pulse as we can without cutting into the actual TPC signal. Channels 88:94 have what we think is the best bipolar filter shape. Channel 95 is just a mix of components to fill out the system."
248*	248	<i>Andrews</i> : Run is random triggers that provide noise pedestal.
Config 4	194-	<i>Edmunds</i> : The Preamp Box for Bo has been put back together with preamp cards that have the following types of filters. 1st Induction plane: wires 0:15 have the original 20 kHz filter, wires 16:31 have the narrow Gaussian unipolar filter. 2nd Induction plane: wires 32:47 and wires 48:63 have the narrow Gaussian unipolar filter. Collection plane: wires 64:79 have the narrow Gaussian unipolar filter, wires 80:95 have the narrow Gaussian

		<p>bipolar filter.</p> <p>A full description of these filters is on my MSU LArTPC web site. Note that the gain of the narrow Gaussian filter has been set higher than the gain of the original filters so the RMS noise levels of the original filters and these new filters can not be directly compared. The Bo DAQ system should be ready to use again.</p>
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